COLORADO RIVER RECOVERY PROGRAM
FY 2007 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 128

I. Project Title: Abundance Estimates for Colorado pikeminnow in the Green River Basin, Utah and Colorado

II. Principal Investigator(s):
Lead Agencies: Larval Fish Laboratory, CSU

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Jointly Submitted by: Larval Fish Laboratory, CSU, Utah Division of Wildlife Resources, U.S. Fish and Wildlife Service, Colorado Division of Wildlife

III. Project Summary:

Sampling conducted during this project is designed to obtain capture-recapture data needed to estimate abundance of Colorado pikeminnow *Ptychocheilus lucius* in the lower Yampa and lower White rivers and the Green River downstream of Whirlpool Canyon exclusive of Split Mountain Canyon. Abundance estimates of endangered Colorado pikeminnow are needed to better monitor population status and provide benchmarks against which progress toward recovery can be measured. This project is designed to have three years (2006-2008) of sampling followed by a year of data analysis and report writing. The design is essentially the same as that employed for sampling conducted from 2000-2003 in the same area (Bestgen et al. 2005). Sampling during this study began in spring 2006, and continued in spring 2007, with the Colorado Division of Wildlife and the Larval Fish Laboratory responsible for sampling the Yampa River, the U. S. Fish and Wildlife Service, Vernal, responsible for the reach of the Green River from the White River downstream to Tusher Diversion and the lower White River, and the Utah Division of Wildlife Resources responsible for the Green River reaches from lower Whirlpool Canyon to the White River confluence and from Tusher Diversion downstream to the Colorado River. The Larval Fish Laboratory will provide coordination, data checking, and data analysis assistance. Our primary goal was to capture, mark, and recapture as many Colorado pikeminnow as possible on at least three different sampling occasions in each river reach. Sampling occurred during spring runoff and mostly ended before pikeminnow spawning migration. Electrofishing was the primary sampling gear. Captured pikeminnow were scanned for the presence of a PIT tag, and unmarked fish were marked. These data will be used to obtain abundance estimates for each river reach. We also began an analysis of razorback sucker recapture data to further understanding of demographic rates such as survival for stocked fish.

IV. Study Schedule: Initial Year 2006
Final year 2009

V. Relationship to RIPRAP *(Version: March 8, 2000)*:

V. Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management)
V.B. Conduct research to acquire needed life history information
V.B.2. Conduct appropriate studies to provide needed life history information.

VI. Accomplishment of FY 2007 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

We completed three to six sampling passes through the five Green River Basin reaches listed below (Tables 1-5) to capture sub-adult and adult Colorado pikeminnow:

a) Green River between the confluence of the White River upstream to the lower end of Whirlpool Canyon (i.e., upper Rainbow Park).

b) White River between the confluence of the Green River upstream to Taylor Draw Dam,

c) Yampa River between Deerlodge Park and Craig, excluding Cross Mountain Canyon,

d) Green River from the White River confluence downstream to near Green River, Utah, and,

e) Green River from downstream of Green River, Utah, to the confluence with the Colorado River.

The LFL and CDOW attempted up to eight sampling passes in portions of the Yampa River, in part associated with bass and northern pike removal projects, in order to obtain a more precise and accurate Colorado pikeminnow abundance estimate. Effort for some of those passes was combined (passes 3-6) because few fish were captured in any pass.

In 2007, a total of 492 Colorado pikeminnow => 450 mm TL were captured in the Green River Basin (Tables 1-5, Figs. 1-5). Sampling occurred from early-April to late-June, and 1081 hours of electrofishing, 5 hours of trammel/electrofishing, and 158 fyke net hours were used to capture adult pikeminnow. The largest number of adult pikeminnow were captured in the Lower Green reach (n = 188), followed by the White River (n = 110), middle Green (n = 100), the Desolation-Gray Canyon reach (n = 70) and Yampa River (n = 24) reaches. The 492 adult Colorado pikeminnow captured is comparable to the number that were captured in essentially the same area in 2003 (n = 483), the last year of abundance estimation sampling for Colorado pikeminnow in the period 2000-2003 (Bestgen et al. 2005), and in 2006 (n = 520). In 2000-2003, most pikeminnow adults were captured in the middle Green or White River reaches. An encouraging sign in 2006 was the number of smaller Colorado pikeminnow present in the lower Green River reach, where 369 pikeminnow 182-399 mm TL were captured, tagged, and released (Fig. 5). That number may be greater than the total number of fish in that size class present in all years of sampling the lower Green River from 2001-2003. Although the number of those smaller fish in that reach declined in 2007, increased abundance of fish in the 400-449 mm TL size-class was noted in the Desolation Gray Canyon and middle Green River reaches of the Green River, and the White River, in 2007. This may be due to movement of some of those recruits upstream since 2006.

We also began an analysis of recapture information for razorback sucker with a goal of obtaining demographic estimates of parameters such as survival rates. With the assistance of the Grand Junction office of the U. S. Fish and Wildlife Service, we obtained a large database that contained over 150,000 records of tagged and razorback suckers. Ms. Koreen Zelasko, graduate student at the Larval Fish Laboratory, Colorado State University, is responsible for data quality control and analysis and the project will serve as her thesis research for her Masters degree. To date, data have been proofed and missing information assembled to the extent possible. Analysis of data for demographic parameters is beginning and should be complete in late spring.

VII. Recommendations:

Continue sampling in 2008.

VIII. Project Status:
Project completed.

IX. FY 2007 Budget Status

A. Funds Provided: $341,987
B. Funds Expended: $316,000
C. Difference: $26,987, some data verification and analysis remains to be accomplished.
D. Percent of the FY 2007 work completed, and projected costs to complete: 90% complete, no additional funds needed to finish project.
E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission (Where applicable):

PIT Tag data files will be submitted by individual agencies (USFWS, UDWR) by January 2007.

XI. Signed: *Kevin R. Bestgen* 11-07-2007
Reporting Principal Investigator Date

Table 1. Sampling dates, effort, and Colorado pikeminnow captured for a portion of the Yampa River population of Colorado pikeminnow, 2007. Pikeminnow captures are for fish 450 mm TL or greater and include recaptures. Data for sampling passes 3-6 were combined due to the few captures of Colorado pikeminnow. Data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captures [1]
				Trammel/ Electro-fishing	Fyke Nets	Electro-fishing	
Yampa River							
Trip 1	April 17 - 24	10	134 - 50	0.25	0	71	3
Trip 2	April 25 - May 8	14	134 - 50	1.8	0	111	6
Trip 3	May 15 – June 30	34	134 - 50	2.5	158	249	15
Totals		58		4.55	158	431	24

[1] Total Number of pikeminnow captured including recaptures.

Table 2. Sampling dates, effort, and Colorado pikeminnow captured for the White River population of Colorado pikeminnow, 2007. Pikeminnow captures are for fish 450 mm TL or greater and include recaptures. Data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captures[1]
				Trammel/ Electro-fishing	Fyke Nets	Electro-fishing	
White River							
Trip 1	April 30 – May 16	9	104-0	0	0	45	37
Trip 2	May 14 – 24	8	104-0	0	0	44	39
Trip 3	May 18 – June 6	8	104-0	0	0	44	34
Totals		25				133	110

[1] Total Number of pikeminnow captured including recaptures.

Table 3. Sampling dates, effort, and Colorado pikeminnow captured for the middle Green River population of Colorado pikeminnow, 2007. Pikeminnow captures are for fish 450 mm TL or greater and include recaptures. Data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captures[1]
				Trammel/ Electro-fishing	Fyke Nets	Electro-fishing	
Middle Green							
Trip 1	April 11 – 27	9	334-246	0	0	43	18
Trip 2	April 30 – May 9	7	334-246	0	0	40	33
Trip 3	May 14 – May 24	7	334-246	0	0	44	49
Totals		23				127	100

[1] Total Number of pikeminnow captured including recaptures.

Table 4. Sampling dates, effort, and Colorado pikeminnow captured for the Desolation-Gray Canyon population of Colorado pikeminnow, 2007. Pikeminnow captures are for fish 450 mm TL or greater and include recaptures. Data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captures [1]
				Trammel/Electro-fishing	Fyke Nets	Electro-fishing	
Deso-Grey							
Trip 1	April 3- 7	8	246 -128	0	0	55	31
Trip 2	April 11 - 15	8	246 - 128	0	0	53	21
Trip 3	April 16 – 26	8	246 - 128	0	0	55	18
Total		24		0	0	163	70

[1] Number of Colorado pikeminnow captured includes recaptures.

Table 5. Sampling dates, effort, and Colorado pikeminnow captured for the lower Green River population of Colorado pikeminnow, 2007. Pikeminnow captures are for fish 450 mm TL or greater and include recaptures. Data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Total Effort (hours)			Number of Pikeminnow Captures [1]
				Trammel/Electro-fishing	Fyke Nets	Electro-fishing	
Lower Green							
Trip 1	May 9 – May 17	9	120 - 0	0	0	81	84
Trip 2	May 23 – May 31	9	120 - 0	0	0	80	74
Trip 3	June 6 - June 13	8	120 - 0	0	0	71	30
Total		26		0	0	227	188

[1] Number of Colorado pikeminnow captured includes recaptures.

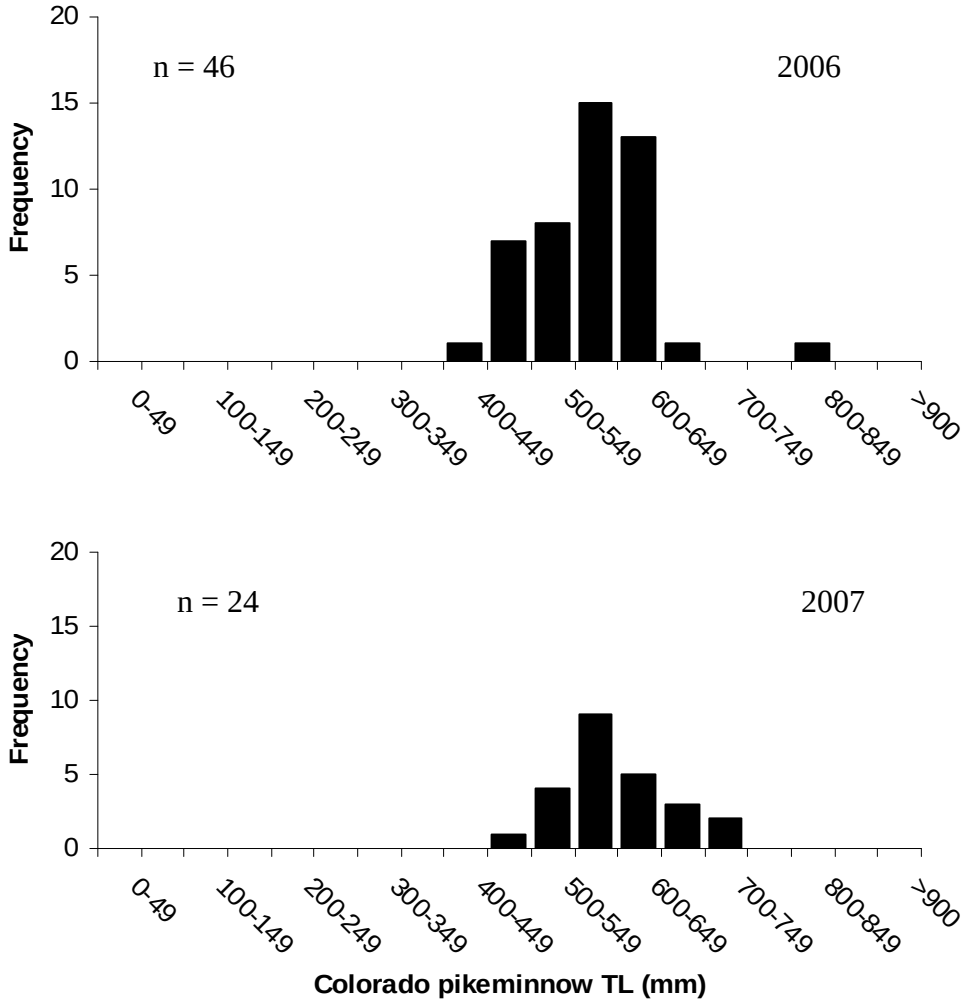

Figure 1. Length frequency histograms for Colorado pikeminnow captures in the Yampa River, 2006-2007.

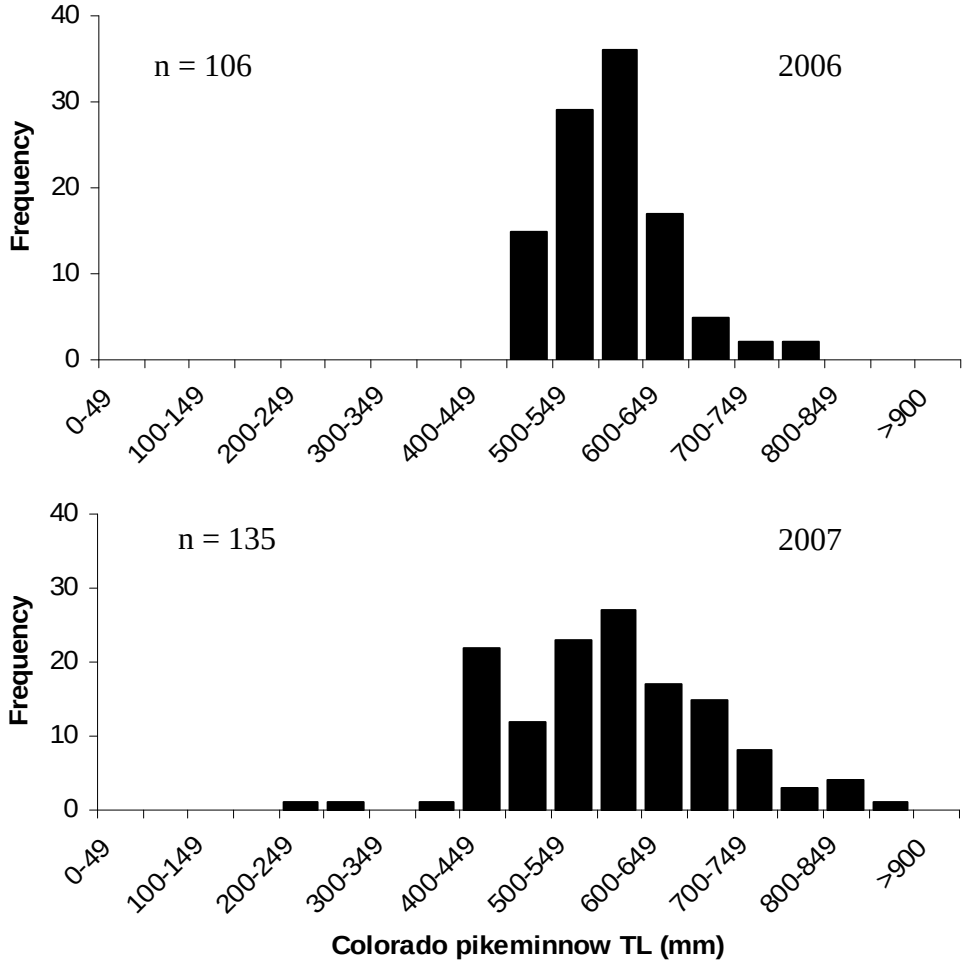

Figure 2. Length frequency histogram for Colorado pikeminnow captured in the White River, 2006-2007.

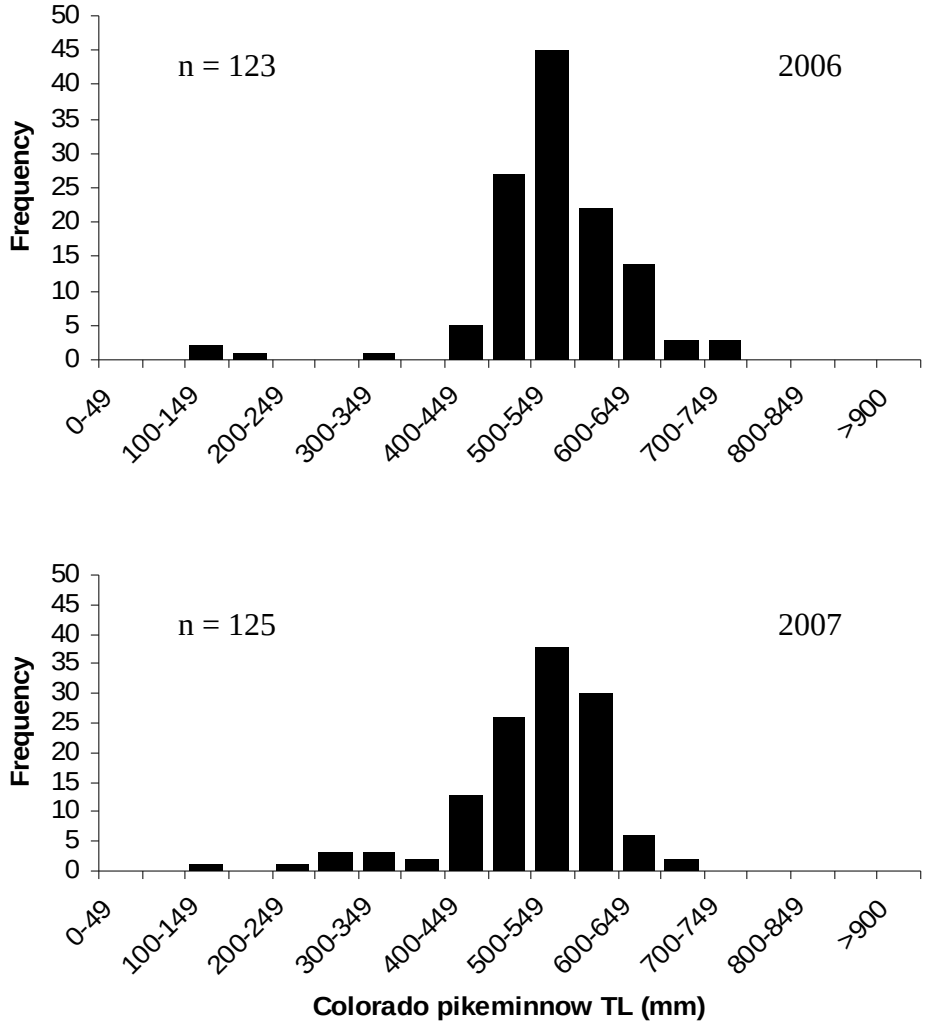

Figure 3. Length frequency histogram for Colorado pikeminnow captured in the Middle Green reach of the Green River, 2006-2007.

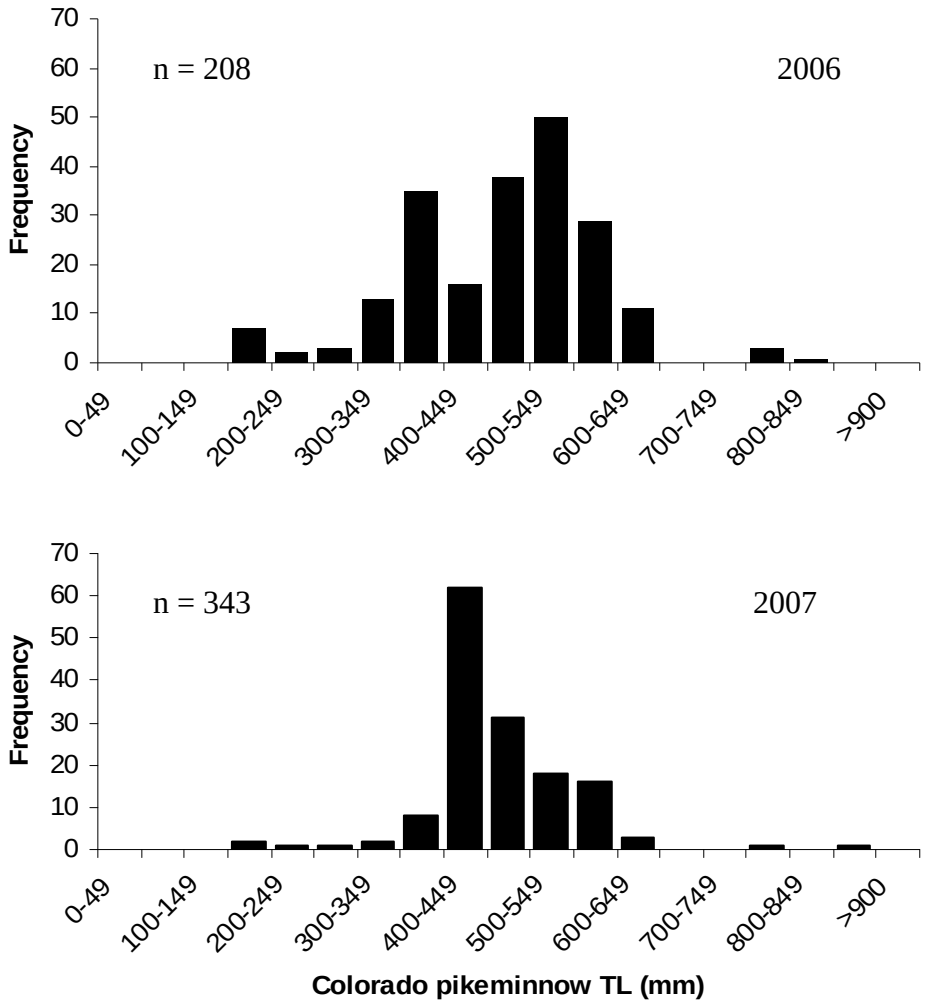

Figure 4. Length frequency histogram for Colorado pikeminnow captured in Desolation-Gray Canyon reach of the Green River, 2006-2007.

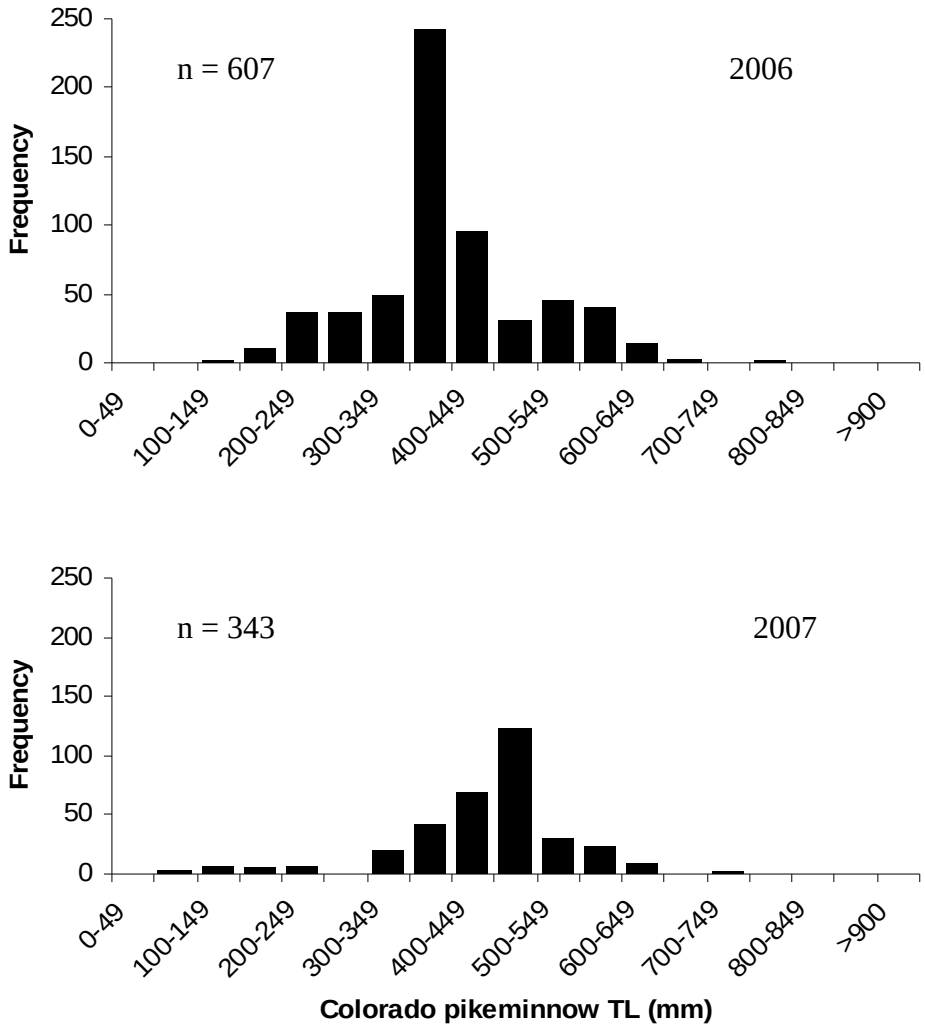

Figure 5. Length frequency histogram for Colorado pikeminnow captured in the Lower Green reach of the Green River, 2006-2007.